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| 10/500,630 | 06/29/2004 | **Allan J. Clarke** | P51216 | 2988 |

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| EXAMINER | |
|---|---|
| SASAN, ARADHANA | |
| **ART UNIT** | **PAPER NUMBER** |
| 1615 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/500,630 | CLARKE, ALLAN J. | |
| | Examiner | Art Unit | |
| | ARADHANA SASAN | 1615 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,4,7,8,11-14,20,21,23-27,29-32,37-41 and 51-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,7,8,11-14,20,21,23-27,29-32,37-41 and 51-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Status of Application*

1. The remarks and amendments filed on 12/22/08 are acknowledged.

2. Claims 2-3, 5-6, 9-10, 15-19, 22, 28, 33-36, and 42-50 were cancelled.

3. Claims 1, 4, 7, 8, 11-13, 20-21, 23-24, 26-27, and 29-31 were amended. New claims 51-59 were added.

4. Claims 1, 4, 7-8, 11-14, 20-21, 23-27, 29-32, 37-41, and 51-59 are included in the prosecution.

### *Response to Arguments*

**Objection to the Specification**

5. Regarding the objection to the Specification, Applicants amended the typo on Page 4, line 26. However, the amendment still contains a typo (supermicrocellar) instead of supermicrocellular (see Abstract). Appropriate correction is still required.

6. In light of Applicant's amendments to the Specification, the remaining objections are withdrawn.

**Claim objections**

7. In light of Applicant's amendments to claims 13, 31 and 24, the claim objections are withdrawn. However, new claim objections, necessitated by Applicant's amendment follow.

**Rejection of claims 11, 12, 29 and 30 under 35 USC § 112, 2nd paragraph**

8. In light of Applicant's amendments to claims 11, 12, 29 and 30, the rejection under 35 USC § 112, second paragraph is withdrawn. However, a new rejection under 35 USC § 112, second paragraph, necessitated by Applicant's amendment follows.

**Rejection of claims 1, 3-7, 9-25 and 27-41 under 35 USC § 103(a)**

9. In light of the cancellation of claims 3, 5-6, 9-10, 15-19, 22, 28, and 33-36, the rejection under 35 USC § 103(a) as being unpatentable over Breitenbach et al. (US 6,150,424) in view of Jane et al. (US 5,710,190) is rendered moot.

10. Applicants' arguments, see Page 11, filed 12/22/08, with respect to the rejection of claims 1, 4, 7, 11-14, 20-21, 23-25, 27, 29-32, and 37-41 under 35 USC § 103(a) as being unpatentable over Breitenbach et al. (US 6,150,424) in view of Jane et al. (US 5,710,190) have been fully considered but are not found persuasive.

Applicant argues that Breitenbach et al. requires a thermoplastic polymer which is N-vinylpyrrolidone and that the present invention does not use such a polymer.

This is not persuasive because instant claims recite the transitional phrase "comprising" which is open language and does not exclude other polymers. Breitenbach also teaches foamed active ingredient preparations comprising bulking agents (mannitol, sorbitol, xylitol) which are the non-thermosetting polymerized plastics material of instant claim 1. Breitenbach teaches starch which is the non-thermosetting modifier.

Applicant argues that a significant difference between the present invention and Breitenbach et al. is that microcellular foam tablets of the present invention are formed in-situ, by first intent, in a novel injection molding process (as described herein). Applicant argues that Breitenbach et al. prepares thermoplastic foam extrudates in a conventional extruder, the extrudates are then shaped into forms by secondary processes, i.e., cutting, chopping, punching (see column 5, lines 31 to 61). Applicant argues that consequently, the formulation and the process of using this formulation to make injection molded tablets is fundamentally different.

This is not persuasive because instant claims are drawn to a composition and do not recite any product-by-process or process limitations. The components of the composition are taught by the prior art references and the specific limitations are rendered obvious by the combination of Breitenbach and Jane.

Applicant argues that in the present invention the active pharmaceutical agent, the polyol and the non-thermosetting polymer and/or modifier take the form of a rigid microcellular foam and that in one aspect of this invention the resulting tablet can be a composition which will dissolve substantially immediately in the mouth upon oral administration.

This is not persuasive because Breitenbach teaches a high rate of dissolution of the active ingredient correlated with a high degree of foaming (Col. 4, lines 61-65). Therefore, one of ordinary skill in the art would find it obvious to use the preparation of Breitenbach for a fast dissolving tablet.

Applicant argues that the presently claimed invention employs the novel use of thermosetting agents, such as polyols, starches, maltodextrins that, in the process of the invention can be injection molded into foamed tablets despite the fact they are not thermoplastic and that this is an unexpected and a novel invention. Applicant argues that Breitenbach does not teach the specific combination of a polyol and the non-thermoplastic polymer or modifier as the matrix of the resulting tablet.

This is not persuasive because the use of polyols, and starches in a solid, foamed active ingredient preparation is taught by Breitenbach. The use of maltodextrins is optional in claim 1. Breitenbach teaches tableting (Col. 5, lines 2-5). One of ordinary

skill in the art would find it obvious to use the components and the method of tableting as taught by Breitenbach and arrive at the instant invention.

Applicant argues that the process also employs a unique forming agent (supercritical CO2 or N2).

This is not persuasive because instant claims do not require a unique forming agent (supercritical CO2 or N2) and this feature upon which Applicant relies is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore, the rejection of 07/09/08 is maintained and applied to newly added claims 51-59.

**Rejection of claims 8 and 26 under 35 USC § 103(a)**

11. Applicants' arguments, see Page 11, filed 12/22/08, with respect to the rejection of claims 8 and 26 under 35 USC § 103(a) as being unpatentable over Breitenbach et al. (US 6,150,424) in view of Jane et al. (US 5,710,190) and De Bock et al. (US 5,428,150) have been fully considered but are not found persuasive.

Regarding De Bock, Applicant argues that there is no disclosure of the composition (of De Bock) being used with a supercritical fluid to form a microcellular foam product.

This is not persuasive because the features upon which Applicant relies (supercritical fluid) are not recited in the rejected claims.

Applicant argues that De Bock does not teach, nor suggest, the inclusion of an active pharmaceutical agent in the resulting article.

This is not persuasive because De Bock is used as a supporting reference to provide the teaching of maltodextrins as a non-thermosetting modifier. One of ordinary skill in the art would find it obvious to try maltodextrin in the compositions of Breitenbach and Jane because the lower the DE value of the maltodextrin the less the extent of starch degradation, as taught by De Bock (Col. 3, lines 36-47).

Therefore, the rejection of 07/09/08 is maintained.

**OBJECTIONS/REJECTIONS:**

***Objection to the Specification***

12. The disclosure is objected to because of the following informalities:

- There is a typo on Page 4, line 26: "supermicrocellar" should be corrected to "supermicrocellular".

***Claim Objections***

13. Claim 11 is objected to because, as amended, it is not dependent on any claim.

14. Claim 21 is objected to because the limitation "optionally further comprises a sweetener, a disintegrant, a binder, a lubricant, or an opacifier" is repeated at the end of the claim.

15. Claims 52-54 and 57-58 are objected to because the terms "wherein the" are repeated. Appropriate correction is required.

16. Claim 58 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 53. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 112***

17. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

18. Claims 12-13, 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter.

19. Claim 12 recites the limitation "the lubricant" in line 2. Claim 12 is dependent on claim 1, which does not recite a lubricant. There is insufficient antecedent basis for this limitation in the claim.

20. Claim 13 recites the limitation "the opacifier" in line 2. Claim 13 is dependent on claim 1, which does not recite an opacifier. There is insufficient antecedent basis for this limitation in the claim.

21. Claim 59 recites 7 examples with specific formulations. Example 1 of claim 59 correlates with Example 2 in the Specification on Page 37, lines 6-12. Example 2 of claim 59 correlates with Example 12 in the Specification on Page 39, lines 10-15. Example 3 of claim 59 correlates with Example 49 in the Specification on Page 50, lines 8-13. Example 4 of claim 59 correlates with Example 51 in the Specification on Page 50, lines 22-27. Example 5 of claim 59 correlates with Example 52 in the Specification on Page 50, line 29 to Page 51, line 2. Example 6 of claim 59 correlates with Example 55 in the Specification on Page 51, lines 19-25. Example 7 of claim 59 correlates with Example 56 in the Specification on Page 51, lines 27-32. Although these 7 examples are supported in the instant specification, it is unclear which formulation out of the 7 examples Applicant intends to be the pharmaceutical dosage form.

Even though claim 59 depends on claim 1, claim 1 recites the elements of the polyol, the non-thermosetting modifier and the non-thermosetting polymer in the

alternative. Claim 59 does not recite the formulations (examples 1 through 7) in the alternative. The Examiner suggests that Markush language ("selected from the group consisting of") be used in claim 59, without introducing new matter.

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

23. Claims 1, 4, 7, 11-14, 20-21, 23-25, 27, 29-32, 37-41, and 51-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. (US 6,150,424) in view of Jane et al. (US 5,710,190).

The claimed invention is a pharmaceutical dosage form suitable for oral administration comprising a molded microcellular polymeric material and a pharmaceutically acceptable active agent. The molded microcellular polymeric material is a non-thermosetting polymerized plastics material comprised of at least one polyol selected from lactitol, xylitol, erythritol, sorbitol, maltitol, or mannitol, or combinations thereof; and at least one of a) non-thermosetting modifier selected from a starch, maltodextrin, a dextrose equivalent, polyalditol, a hydrogenated starch hydrosylate, or a mixture thereof; and/or b) a non-thermosetting polymer selected from carboxymethyl cellulose sodium, methyl cellulose, ethylcellulose, hydroxyethylcellulose (HEC), hydroxypropylmethyl cellulose (HPMC), hydroxypropylmethyl cellulose phthalate,

cellulose acetate phthalate, noncrystalline cellulose, starch and its derivatives, and sodium starch glycolate or mixtures thereof.

Breitenbach teaches solid, foamed active ingredient preparations based on melt-processable polymers (Col. 1, lines 5-7). Suitable active ingredients include analgesics (acetylsalicylic acid), antibiotics (amoxicillin), antidepressants (fluoxetine) and antihypertensives (verapamil) (Col. 1, line 38 to Col. 2, line 38). Suitable polymers such as melt processable homo- or copolymers of N-vinylpyrrolidone or mixtures of such polymers are disclosed (Col. 2, lines 58-60). "The active ingredient preparations may furthermore also comprise starches ..." (Col. 3, lines 21-22). Conventional pharmaceutical ancillary substances such as bulking agents (mannitol, sorbitol, xylitol), lubricants (stearates of aluminum or calcium), plasticizers (polyethylene glycol), dyes and stabilizers that can be included in the preparation are also disclosed (Col. 3, lines 26-60). "The degree of foaming of the active ingredient preparation can be controlled by the amount of blowing agent added and the extrusion temperature. A high degree of foaming results in a lower density and thus a high rate of dissolution of the active ingredient form" (Col. 4, lines 61-65). "The foamed active ingredient preparation is subsequently shaped to the required active ingredient forms ... by pelleting, granulating or tableting by known processes" (Col. 5, lines 2-5).

Breitenbach does not expressly teach a molded microcellular dosage form.

Jane teaches "... a biodegradable, soy protein-based thermoplastic composition. The composition is made of soy protein combined with a foaming agent, an organic plasticizing agent, and an aqueous medium such as water, and additives as desired. Articles formed from the composition have a foamed, cellular structure, and are

biodegradable and possess a high degree of tensile strength, low density, and water resistance." (Col. 1, lines 42-51). "The composition is composed of about 100 parts soy protein that is preferably soy protein isolate, ... and about 0.1-10 parts of a foaming agent, ... about 5-60 parts of an organic plasticizing agent that is preferably glycerol, ethylene glycol or propylene glycol, and about 5-50 parts aqueous medium which is preferably water. One or more additives such as a filler, lubricant, colorant, preservative, and bleaching/whitening agent, can be included as desired" (Col. 1, lines 54-65). "The mixture can be molded into an article by compression molding" (Col. 2, lines 3-4). "Advantages of the protein based thermoplastics include excellent biodegradability, water resistance, and a low cost production" (Col. 2, lines 11-24). Polyethylene glycol is disclosed as a plasticizer, along with mannitol and maltitol (Col. 3, lines 51-64). Starches including corn or wheat starch can be used as fillers (Col. 4, lines 36-44). "Natural and modified gums such as xanthan gum, guar gum, locust bean gum, gum arabic, alginates, carrageenan, pectin, agar, konjac flour, and the like, can also be included as a filler in the composition" (Col. 4, lines 54-57). Cellulose derivatives such as methylcellulose, carboxymethylcellulose, hydroxymethylcellulose, hydroxypropylcellulose and sodium carboxymethylcellulose can also be used as fillers (Col. 4, lines 58-62). Lubricants and colorants are disclosed (Col. 5, lines 11-35). Examples disclose molded articles with a foamed appearance and a closed cell structure with an average cell diameter of about 50μm (Col. 8, lines 12-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a solid, foamed active ingredient preparation, as taught by

Breitenbach, combine it with the foamed microcellular composition, as taught by Jane, and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because Jane teaches that the foamed microcellular composition has the advantages of excellent biodegradability, water resistance, and a low cost production" (Col. 2, lines 11-24).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Regarding instant claim 1, the limitation of a pharmaceutical dosage form would have been obvious over the solid, foamed active ingredient preparation that can subsequently be shaped by pelleting, granulating or tableting by known processes, as taught by Breitenbach (Col. 1, lines 5-7 and Col. 5, lines 2-5). The limitation of a molded microcellular polymeric material and a non-thermosetting polymerized plastics material would have been obvious over the melt processable homo- or copolymers of N-vinylpyrrolidone, starches, mannitol, sorbitol and xylitol as taught by Breitenbach (Col. 2, lines 58-60, Col. 3, lines 21-22 and Col. 3, lines 33-35). The limitation of the molded polymeric material would have been obvious over the molding of the mixture as taught by Jane (Col. 2, lines 3-4). The limitation of a pharmaceutically acceptable active agent would have been obvious over the active ingredients include analgesics (acetylsalicylic

acid), antibiotics (amoxicillin), antidepressants (fluoxetine) and antihypertensives (verapamil), as taught by Breitenbach (Col. 1, line 38 to Col. 2, line 38). The limitation of the non-thermosetting polymerized plastics material that contains at least one polyol and at least one non-thermosetting modifier would have been obvious over the polyols mannitol, sorbitol and xylitol and the starches, as taught by Breitenbach (Col. 3, lines 21-22 and Col. 3, lines 33-35). The limitation of the non-thermosetting polymer would have been obvious over the cellulose derivatives such as methylcellulose, carboxymethylcellulose, hydroxymethylcellulose, hydroxypropylcellulose and sodium carboxymethylcellulose taught by Jane (Col. 4, lines 58-62).

Regarding instant claims 4, 23-24, the limitation of the non-thermosetting polymerized plastics material that contains at least one polyol and at least one non-thermosetting modifier would have been obvious over the polyols mannitol, sorbitol and xylitol and the starches, as taught by Breitenbach (Col. 3, lines 21-22 and Col. 3, lines 33-35).

Regarding instant claims 7 and 25, the limitation of the starch would have been obvious over the starches taught by Breitenbach (Col. 3, lines 21-22) and over the corn starch, wheat starch, rice starch and potato starch taught by Jane (Col. 4, lines 36-44).

Regarding instant claim 27, the limitation of the non-thermosetting polymer that is present in an amount of 2 to 90% w/w would have been obvious over the 5 to 20 parts of filler such as starch, cellulose derivatives such as methylcellulose, carboxymethylcellulose, hydroxymethylcellulose, hydroxypropylcellulose and sodium carboxymethylcellulose taught by Jane (Col. 4, lines 25-62).

Regarding instant claims 11 and 29, the limitation of the disintegrant would have been obvious over the sodium carboxymethylcellulose taught by Jane (Col. 4, lines 58-62) and the guar gum, locust bean gum, and agar as taught by Jane (Col. 4, lines 54-57).

Regarding instant claims 12 and 30, the lubricant would have been obvious over the talc, as taught by Breitenbach (Col. 3, line 53).

Regarding instant claims 13 and 31, the opacifier would have been obvious over the calcium carbonate used as a bleaching/whitening agent, as taught by Jane (Col. 5, lines 5-7).

Regarding instant claims 14 and 32, the pharmaceutically acceptable active agent would have been obvious over the active ingredients include analgesics (acetylsalicylic acid), antibiotics (amoxicillin), antidepressants (fluoxetine) and antihypertensives (verapamil), as taught by Breitenbach (Col. 1, line 38 to Col. 2, line 38).

Regarding instant claims 20 and 37, the limitation of the microcellular polymeric material that results in a closed cell foam would have been obvious over the closed cell structure as taught by Jane (Col. 8, lines 12-14).

Regarding instant claim 21, the limitation of a rigid microcellular foam would have been obvious over the solid, foamed active ingredient preparation as taught by Breitenbach (Col. 1, lines 5-7 and Col. 5, lines 2-5) and by the closed cell structure as taught by Jane (Col. 8, lines 12-14). The limitation of a solid excipient having voids with a maximum void dimension in the range from about 2 to 100 microns would have been obvious over the closed cell structure with an average cell diameter of about 50μm, as

taught by Jane (Col. 8, lines 12-14). The limitation of a void fraction in the range of about 5 to 95 percent would have been obvious over the solid foamed active ingredient preparations taught by Breitenbach (Col. 1, lines 5-7) because Breitenbach teaches that "the degree of foaming of the active ingredient preparation can be controlled by the amount of blowing agent added and the extrusion temperature. A high degree of foaming results in a lower density and thus a high rate of dissolution of the active ingredient form" (Col. 4, lines 61-65). One with ordinary skill in the art would modify the process parameters by varying the amount of blowing agent and the extrusion temperature and achieve the desired void fraction. The recited void fraction range would have been an obvious variant unless there is evidence of criticality or unexpected results. The limitation of the solid excipient comprising a thermosetting polymerized plastic material and an active pharmaceutical agent combined in a homogenous solid mixture would have been obvious over the solid foamed active ingredient preparations taught by Breitenbach (Col. 1, lines 5-7). The limitation of optionally comprising a sweetener, a disintegrant, a binder, a lubricant or an opacifier would have been obvious over the lubricants (stearates of aluminum or calcium) taught by Breitenbach (Col. 3, lines 26-60) and the additives such as lubricants and colorants as taught by Jane (Col. 5, lines 11-35).

Regarding instant claim 38, the limitation of the homogenous solid mixture that has a sufficiently high solubility in saliva would have been obvious over the "solid, foamed active ingredient preparations ... which comprise the active ingredient homogenously dispersed in the polymeric matrix, dissolve very rapidly and thus permit rapid release of the active ingredient", as taught by Breitenbach (Col. 6, lines 18-22).

Regarding instant claim 39, the voids that are in the form of closed cells would have been obvious over the closed cell structure taught by Jane (Col. 8, lines 12-14).

Regarding instant claim 40, the limitation of the rigid microcellular foam that is enclosed within a skin would have been obvious over the "closed active ingredient forms, i.e., forms in which the layer comprising active ingredient is completely enveloped by a layer without active ingredient" as taught by Breitenbach (Col. 5, lines 9-60). Breitenbach teaches the "production of multilayer partially or completely foamed forms comprising active ingredients by coextrusion. This entails at least two compositions ... at least one of which comprises an active ingredient and at least one of which is impregnated ..." (Col. 5, lines 9-15). One with ordinary skill in the art would find it obvious to completely impregnate the active ingredient layer with another active ingredient layer during the process of routine experimentation.

Regarding instant claim 41, the limitation of the overall density of the dosage form that is substantially less than that of stomach fluids, whereby the dosage form is gastro-retentive would have been obvious because Breitenbach teaches that "the degree of foaming of the active ingredient preparation can be controlled by the amount of blowing agent added and the extrusion temperature. A high degree of foaming results in a lower density and thus a high rate of dissolution of the active ingredient form" (Col. 4, lines 61-65). One with ordinary skill in the art would modify the density of the dosage form with respect to the density of stomach fluids during the process of routine experimentation in order to make the dosage form gastro-retentive.

Regarding instant claim 51, the limitation of the non-thermosetting modifier that is present in an amount of 5 to 50% w/w would have been obvious over the 5 to 20 parts of filler such as starch taught by Jane (Col. 4, lines 25-44).

Regarding instant claims 52-54 and 57-58, the limitation of the polyol that is present in an amount of 5 to 70% w/w, in an amount of 5 to 50% w/w, and in an amount of 5 to 25% w/w would have been obvious over the 5 to 60 parts of plasticizer such as mannitol, and maltitol taught by Jane (Col. 3, lines 44-64).

Regarding instant claims 55-56, the limitation of the non-thermosetting modifier that is present in an amount of 2 to 90% w/w, and in an amount of 5 to 50% w/w would have been obvious over the 5 to 20 parts of filler such as starch taught by Jane (Col. 4, lines 25-44). The recited range of the non-thermosetting modifier would have been an obvious variant unless there is evidence of criticality or unexpected results.

Regarding instant claim 59, the limitations of the formulations are obvious over the 5 to 20 parts of filler such as starch taught by Jane (Col. 4, lines 25-44), the 5 to 60 parts of plasticizer such as mannitol, and maltitol taught by Jane (Col. 3, lines 44-64) and the hydroxypropylcellulose taught by Jane (Col. 4, lines 58-62).

24. Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. (US 6,150,424) in view of Jane et al. (US 5,710,190) and De Bock et al. (US 5,428,150).

The teachings of Breitenbach and Jane are stated above.

Breitenbach and Jane do not expressly teach a maltodextrin as a non-thermosetting modifier.

De Bock teaches "a process for the extrusion of a starch-containing composition to produce a material suitable for the production of moulded articles in which the composition contains in addition to the starch a starch degradation product selected from starch hydrolysis products having DE's of 1 to 40, particularly a maltodextrin ..." (Abstract). "The hydrolysis products used in the process ... are preferably maltodextrins and more preferably have DE values of 2 to 20" (Col. 3, lines 50-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a solid, foamed active ingredient preparation, as taught by Breitenbach, combine it with the foamed microcellular composition, as taught by Jane, further combine it with the maltodextrins, as taught by De Bock, and produce the instant invention.

One of ordinary skill in the art would do this because De Bock teaches that maltodextrins are degradation products of starch and the lower the DE value of the maltodextrin the less the extent of starch degradation (Col. 3, lines 36-47). One with ordinary skill in the art would find it obvious to try maltodextrin in the solid, foamed active ingredient preparation and the starches taught by Breitenbach (Col. 3, lines 21-22) and in the foamed microcellular composition with the corn starch, wheat starch, rice starch and potato starch taught by Jane (Col. 4, lines 36-44) with a reasonable expectation of success of producing a functional molded microcellular polymeric dosage form.

Regarding instant claims 8 and 26, the limitation of the non-thermosetting modifier that is a maltodextrin would have been obvious over the maltodextrins and

starches taught by De Bock (Abstract and Col. 3, lines 50-52) and over the starches taught by Breitenbach (Col. 3, lines 21-22) and Jane (Col. 4, lines 36-44).

***Conclusion***

25. No claims are allowed.

26. Since the new grounds of rejection were necessitated by Applicant's amendment, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aradhana Sasan whose telephone number is (571) 272-9022. The examiner can normally be reached Monday to Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Aradhana Sasan/
Examiner, Art Unit 1615

/MP WOODWARD/
Supervisory Patent Examiner, Art Unit 1615